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Certified Arborist's
Pre-Construction Tree Inventory & Report

September 07, 2016

Prepared for:
John Duquette
ARC TEC / Architectural Technologies
99 Almaden Boulevard, Suite 840
San Jose, CA 95113

Project Location:
– Commercial Site–
3375 Scott Boulevard
Santa Clara, CA 95054

Prepared by:
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Contents

1.0 Assignment

I have been retained by John Duquette, ARC TEC to provide a Pre-Construction Tree Inventory for the project at 3375 Scott Boulevard in Santa Clara for planning purposes.

2.0 Executive Summary

One hundred eleven (111) trees are associated with this property, either as site trees, or as street trees, or neighbors' trees at the edge of this site.

Tree Frequency Charts

Sorted Alphabetically by Botanical Name		
Botanical Name		Name, Common
Arbutus 'Marina'	10	Marina Madrone
Betula alba	2	Birch, European White
Fraxinus americana	14	Ash, American
Gleditsia triacanthos	16	Locust, Honey
Lagerstroemia indica	33	Crape Myrtle
Ligustrum lucidum	2	Privet, Glossy
Maytenus boaria	1	Mayten
Pistachia chinensis	19	Pistache, Chinese
Sequoia sempervirens	14	Redw ood, Coast
	111	

Sorted by frequency of Botanical Name		
Botanical Name		Name, Common
Lagerstroemia indica	33	Crape Myrtle
Pistachia chinensis	19	Pistache, Chinese
Gleditsia triacanthos	16	Locust, Honey
Fraxinus americana	14	Ash, American
Sequoia sempervirens	14	Redw ood, Coast
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Ligustrum lucidum	2	Privet, Glossy
Maytenus boaria	1	Mayten
	111	

Overall Condition Chart

Percentage Range	Text Description	Quantity
0%	DEAD	0
1% to 25%	Very Poor	2
26% to 49%	Poor	17
50 % to 70%	Fair	73
71% to 90%	Good	19
91% to 100%	Excellent	0
		111

The City Arborist, John Mendoza, indicated that the Planning Department requires this report to include all trees 4-inch diameter or larger, plus any planted as part of a discretionary project [as well as street trees and neighbors' adjacent/overhanging].

I marked up the topo with my tree numbers and included it herein. I have reviewed the Site Plan sheet A1.01 (dated 06/10/16) which appears to propose removing the buildings but keeping intact the perimeter configuration (parking lot and drive aisles).

It would be a challenge to preserve roots of existing mature trees if re-grading the parking lot or adding underground parking. However, with carefully implemented tree protection measures perhaps most of the redwoods could remain in place, although the interior trees would be demolished with the buildings. It would also be prudent to remove other trees now already in poor condition – including the honey locust trees (#16-#22, #26-#34) and privets (#38, #39).

3.0 Tree Preservation Precepts

Books have been written on this topic – but if I had to choose three basic concepts to highlight:

- Start early to preserve trees that are assets, but preserve whole trees (including roots), not merely trunks.
- The owner(s) must have the entire team committed to preserving each tree everyday (from the designer to the project manager to the guys with the nail bags).
- Minimize impacts, or the tree will require you to mitigate, lest you destroy its rootlets or its structure or its environment

4.0 Site-Specific Information (3375 Scott Boulevard, Santa Clara)

4.1 Existing Conditions (Tree Inventory) & 4.2 Site Map

Tree-specific data is detailed in this Excel™ spreadsheet below (Tree Inventory Data followed by a Legend describing the column headers).

Spreadsheet follows on the next 10 pages.

Tree #	*Botanical Name* / Name, Common	DBH (inches)	Crown Radius (ft.)	Height (ft.)	% Vigor	% Structure	% Overall	Aptitude for Preservation	Age / Longevity	Additional Comments
1	*Sequoia sempervirens* / Redw ood, Coast	46.4	25	94	72%	90%	79% Good	Mod.	Mature	BOC 27' (BOC = back of curb); on mound planter w/ shrubs. Drought stressed.
2	*Lagerstroemia indica* / Crepe Myrtle	8.4	13	25	75%	65%	70% Good	High	Mature	BOC 9'; surface roots, mound planter, aphids.
3	*Lagerstroemia indica* / Crepe Myrtle	7.1	8	20	66%	70%	68% Fair	High	Mature	BOC 10'; driveway 14', raised planter w/ flowers.
4	*Lagerstroemia indica* / Crepe Myrtle	6.6	8	18	66%	70%	68% Fair	High	Mature	In 4' wide parking lot bump-out.
5	*Lagerstroemia indica* / Crepe Myrtle	6.5	8	19	66%	70%	68% Fair	High	Mature	In 4' wide parking lot bump-out; aphids.
6	*Lagerstroemia indica* / Crepe Myrtle	6.5	7	18	66%	70%	68% Fair	High	Mature	BOC 8'; raised planter w/ flowers; aphids.
7	*Sequoia sempervirens* / Redw ood, Coast	44.1	25	75	70%	90%	80% Good	Mod.	Mature	On berm between parking lot & street; BOC 10'; some stress (browning).
8	*Sequoia sempervirens* / Redw ood, Coast	24	15	50	35%	90%	62% Fair	Mod.	Mature	BOC 10', on mound, extensive surface roots, substantial stress, dieback.
9	*Sequoia sempervirens* / Redw ood, Coast	22.9	15	45	35%	90%	62% Fair	Mod.	Mature	BOC 10', on mound, extensive surface roots, substantial stress, dieback.
10	*Sequoia sempervirens* / Redw ood, Coast	26.5	15	38	35%	90%	62% Fair	Mod.	Mature	BOC 10', on mound, extensive surface roots, substantial stress, dieback.
11	*Sequoia sempervirens* / Redw ood, Coast	32.8	17	40	35%	90%	62% Fair	Mod.	Mature	BOC 10', on mound, extensive surface roots, substantial stress, dieback. Utility vaults in root zone.
12	*Sequoia sempervirens* / Redw ood, Coast	28.7	15	40	35%	90%	62% Fair	Mod.	Mature	BOC 17'; notable stress (browning).
13	*Sequoia sempervirens* / Redw ood, Coast	31.1	18	55	60%	90%	75% Good	Mod.	Mature	BOC 15'; not so stressed as others in this alignment.
14	*Lagerstroemia indica* / Crepe Myrtle	8	8	20	66%	70%	68% Fair	High	Mature	BOC 18', parking lot curb 4', driveway at 8', transformer + other utilities in root zone + sign; aphids.
15	*Lagerstroemia indica* / Crepe Myrtle	4.3	7	16	66%	70%	68% Fair	High	Mature	BOC 8', fiber utilities in root zone. Aphids.
16	*Gleditsia triacanthos* / Locust, Honey	8.5	15	18	40%	25%	32% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Extensive dieback.
17	*Gleditsia triacanthos* / Locust, Honey	9.8	16	20	40%	30%	35% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Significant dieback.
18	*Gleditsia triacanthos* / Locust, Honey	8.8	13	20	30%	30%	30% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Substantial dieback.
19	*Gleditsia triacanthos* / Locust, Honey	8.1	15	20	30%	30%	30% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Severe dieback.
20	*Gleditsia triacanthos* / Locust, Honey	9.2	15	20	35%	30%	32% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Severe dieback.
21	*Gleditsia triacanthos* / Locust, Honey	8.5	12	20	30%	30%	30% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Notable dieback.
22	*Gleditsia triacanthos* / Locust, Honey	8.7	16	20	40%	40%	40% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competion. Notable dieback.

23	*Sequoia sempervirens* / Redw ood, Coast	4.2	4	12	65%	90%	77% Good	High	Young	In corner planter area, still staked but no longer need stake.
24	*Sequoia sempervirens* / Redw ood, Coast	4	4	12	65%	90%	77% Good	High	Young	In corner planter area, still staked but no longer need stake; also nursery stake (rubbing wound on trunk).
25	*Sequoia sempervirens* / Redw ood, Coast	4	4	12	65%	90%	77% Good	High	Young	In corner planter area, still staked but no longer need stake; old locust stump @ 5'.
26	*Gleditsia triacanthos* / Locust, Honey	9	17	18	45%	45%	45% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Dieback starting.
27	*Gleditsia triacanthos* / Locust, Honey	10.6	16	20	25%	30%	27% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Severe dieback.
28	*Gleditsia triacanthos* / Locust, Honey	10.3	16	20	30%	30%	30% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Notable dieback.
29	*Gleditsia triacanthos* / Locust, Honey	10.8	17	25	27%	30%	28% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Severe dieback.
30	*Gleditsia triacanthos* / Locust, Honey	10.1	14	22	33%	30%	31% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Significant dieback.
31	*Gleditsia triacanthos* / Locust, Honey	11.7	18	30	35%	35%	35% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Notable dieback.
32	*Gleditsia triacanthos* / Locust, Honey	7.3	9	17	40%	40%	40% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Dieback starting.
33	*Gleditsia triacanthos* / Locust, Honey	9.3 @ 3'	15	20	30%	25%	27% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Substantial dieback.
34	*Gleditsia triacanthos* / Locust, Honey	10.4	17	25	45%	40%	42% Poor	Very Low	Over-mature	Parking lot curb 5', ivy, oleander competition. Dieback starting.
35	*Lagerstroemia indica* / Crepe Myrtle	8	8	20	68%	70%	69% Fair	High	Mature	Driveway apron at 9', BOC 21', on 4' mound.
36	*Lagerstroemia indica* / Crepe Myrtle	7.5	8	20	68%	70%	69% Fair	High	Mature	Driveway apron at 10', BOC 18', on 4' mound.
37	*Sequoia sempervirens* / Redw ood, Coast	28.5	20	60	40%	85%	62% Fair	Mod.	Mature	BOC 17', on 4' mound, utilities in root zone, significant stress (browning) on west side.
38	*Ligustrum lucidum* / Privet, Glossy	42 @ 1'	15	25	60%	2%	25% V Pr	Very Low	Over-mature	Parking lot curb at 9', BOC 28', ~ 8 stems from ground level, fungus on soil & loose bark facing sprinklered turf... Loose bark, mycellial mat under bark. History of severe pruning - stubbed @ 10'
39	*Ligustrum lucidum* / Privet, Glossy	36.8 @ 1'	15	25	60%	2%	25% V Pr	Very Low	Over-mature	Parking lot curb at 9', BOC 28', ~ 8 stems from ground level, loose bark facing sprinklered turf... Loose bark, mycellial mat under bark, 33% of circumference. History of severe pruning - stubbed @ 10'.
40	*Sequoia sempervirens* / Redw ood, Coast	20.7	15	50	75%	85%	80% Good	Mod.	Mature	BOC 22', on turf mound w/ surface roots; crowded, lop-sided against #41.
41	*Sequoia sempervirens* / Redw ood, Coast	42.7	30	70	70%	90%	80% Good	Mod.	Mature	BOC 19', on turf mound w/ surface roots; very prominent root flare.
42	*Pistachia chinensis* / Pistache, Chinese	16.6	20	40	60%	35%	47% Poor	Mod.	Mature	BOC 13', turf mound w/ surface roots, and Verticillium wilt fungal dieback.
43	*Pistachia chinensis* / Pistache, Chinese	14.3	18	37	70%	50%	60% Fair	Mod.	Mature	4' high voltage transformer, BOC 13', on mound in turf surface roots, many utilities.
44	*Lagerstroemia indica* / Crepe Myrtle	5	6	22	66%	70%	68% Fair	High	Mature	3' to drive aisle curb, in ivy.

45	*Lagerstroemia indica* / Crepe Myrtle	5.4	8	22	66%	70%	68% Fair	High	Mature	3' to sidewalk, in ivy.
46	*Lagerstroemia indica* / Crepe Myrtle	5.2	7	22	66%	70%	68% Fair	High	Mature	4' to drive aisle curb, in ivy.
47	*Arbutus 'Marina'* / Marina Madrone	7.1	9	25	75%	85%	80% Good	High	Mature	Corner of existing building at 4'.
48	*Lagerstroemia indica* / Crepe Myrtle	7.4	9	23	66%	70%	68% Fair	High	Mature	3' to existing building.
49	*Lagerstroemia indica* / Crepe Myrtle	8.3	10	22	66%	70%	68% Fair	High	Mature	3' to existing building.
50	*Arbutus 'Marina'* / Marina Madrone	14.0 @ 2'	17	33	80%	75%	77% Good	High	Mature	6' to corner of existing building, accumulating endweights.
51	*Lagerstroemia indica* / Crepe Myrtle	7.1	8	22	66%	70%	68% Fair	High	Mature	3' to existing building, in ivy and tobira shrub.
52	*Lagerstroemia indica* / Crepe Myrtle	7.5	8	22	66%	70%	68% Fair	High	Mature	7' to corner of existing building in ivy, sidewalk @ 3'.
53	*Lagerstroemia indica* / Crepe Myrtle	4.9	9	19	66%	70%	68% Fair	High	Mature	In ivy planter w/ signs & electroleer.
54	*Lagerstroemia indica* / Crepe Myrtle	7.9 @ 3'	9	19	66%	70%	68% Fair	High	Mature	In ivy planter w/ signs & electroleer.
55	*Lagerstroemia indica* / Crepe Myrtle	7.3	9	19	66%	70%	68% Fair	High	Mature	In ivy planter w/ signs & electroleer.
56	*Arbutus 'Marina'* / Marina Madrone	10.4	18	28	80%	75%	77% Good	High	Mature	5' to corner of existing building.
57	*Lagerstroemia indica* / Crepe Myrtle	4.7	7	18	66%	70%	68% Fair	High	Mature	In 4'x4' planter w/ electroleer.
58	*Arbutus 'Marina'* / Marina Madrone	12.9 @ 3'	18	30	80%	75%	77% Good	High	Mature	5' to corner of existing building.
59	*Lagerstroemia indica* / Crepe Myrtle	6.3	9	21	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & fire hydrant.
60	*Lagerstroemia indica* / Crepe Myrtle	5.7	9	21	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & fire hydrant.
61	*Lagerstroemia indica* / Crepe Myrtle	5.7	9	21	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & fire hydrant.
62	*Lagerstroemia indica* / Crepe Myrtle	7.2	18	22	66%	70%	68% Fair	High	Mature	3' to existing building w/ shrubs.
63	*Lagerstroemia indica* / Crepe Myrtle	6.8	7	20	66%	70%	68% Fair	High	Mature	3' to existing building w/ shrubs.
64	*Arbutus 'Marina'* / Marina Madrone	12.2 @ 2'	18	33	80%	75%	77% Good	High	Mature	4' to existing building, lop-sided.
65	*Arbutus 'Marina'* / Marina Madrone	12.2 @ 2'	18	33	80%	75%	77% Good	High	Mature	4' to existing building, lop-sided.
66	*Lagerstroemia indica* / Crepe Myrtle	9.2	12	22	66%	70%	68% Fair	High	Mature	In 4'x5' planter w/ electroleer
67	*Lagerstroemia indica* / Crepe Myrtle	9 @ 3'	12	25	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & sign
68	*Lagerstroemia indica* / Crepe Myrtle	10.8 @ 2'	12	25	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & sign.
69	*Lagerstroemia indica* / Crepe Myrtle	5.3	12	22	66%	70%	68% Fair	High	Mature	In ivy planter w/ electroleer & sign.
70	*Arbutus 'Marina'* / Marina Madrone	6.8	12	27	80%	75%	77% Good	High	Mature	6' to corner of existing building, accumulating endweights.
71	*Arbutus 'Marina'* / Marina Madrone	9	18	27	80%	75%	77% Good	High	Mature	5' to corner of existing building
72	*Lagerstroemia indica* / Crepe Myrtle	4	4	15	66%	70%	68% Fair	High	Mature	In 4'x5' planter w/ electroleer.
73	*Betula alba* / Birch, European White	5.3	12	27	60%	60%	60% Fair	High	Young	8' to interior sidewalk.

74	*Arbutus 'Marina'* / Marina Madrone	9	25	33	80%	75%	77% Good	High	Mature	Ivy planter mound, 3' to interior concrete patio.
75	*Maytenus boaria* / Mayten	15.7	27	45	65%	40%	52% Fair	Very Low	Over-mature	Planter mound, 5' to interior concrete patio; some dieback, lop-sided.
76	*Betula alba* / Birch, European White	4.5	15	22	60%	60%	60% Fair	High	Young	In turf by interior concrete patio.
77	*Lagerstroemia indica* / Crepe Myrtle	4.2	7	22	66%	70%	68% Fair	High	Mature	Interior courtyard patio.
78	*Lagerstroemia indica* / Crepe Myrtle	4.1	7	17	66%	70%	68% Fair	High	Mature	Interior courtyard patio.
79	*Lagerstroemia indica* / Crepe Myrtle	5.3	7	20	66%	70%	68% Fair	High	Mature	Interior courtyard patio.
80	*Arbutus 'Marina'* / Marina Madrone	4	5	14	80%	75%	77% Good	High	Mature	Still staked but stake no longer needed; BOC 17' (Garrett).
81	*Fraxinus americana* / Ash, American	2	4	15	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
82	*Fraxinus americana* / Ash, American	2	4	15	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
83	*Fraxinus americana* / Ash, American	2.3	5	15	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
84	*Fraxinus americana* / Ash, American	2.1	5	15	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
85	*Fraxinus americana* / Ash, American	2.8	5	16	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
86	*Fraxinus americana* / Ash, American	2.5	6	17	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
87	*Fraxinus americana* / Ash, American	2.3	5	17	70%	65%	67% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
88	*Fraxinus americana* / Ash, American	2	4	13	70%	65%	67% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
89	*Fraxinus americana* / Ash, American	2	4	16	70%	65%	67% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
90	*Fraxinus americana* / Ash, American	2	4	17	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
91	*Fraxinus americana* / Ash, American	2.1	4	18	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also nursery stake causing rubbing wound on trunk.
92	*Fraxinus americana* / Ash, American	2	4	16	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also with nursery stake causing rubbing wound on trunk.

93	*Fraxinus americana* / Ash, American	2	4	15	72%	65%	69% Fair	High	Young	Neighbor's parking lot Curb 4'; still staked but stake no longer needed, also with nursery stake causing rubbing wound on trunk.
94	*Fraxinus americana* / Ash, American	2	4	14	70%	60%	65% Fair	High	Young	In neighbor's bumpout, corner planter; still staked but stake no longer needed, rubbing-wounding trunk.
95	*Pistachia chinensis* / Pistache, Chinese	2.7	6	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
96	*Pistachia chinensis* / Pistache, Chinese	2.8	6	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
97	*Pistachia chinensis* / Pistache, Chinese	3	7	22	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
98	*Pistachia chinensis* / Pistache, Chinese	2.7	8	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
99	*Pistachia chinensis* / Pistache, Chinese	3.7	8	23	70%	45%	58% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
100	*Pistachia chinensis* / Pistache, Chinese	3	6	22	68%	45%	57% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
101	*Pistachia chinensis* / Pistache, Chinese	3	6	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
102	*Pistachia chinensis* / Pistache, Chinese	3	6	25	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
103	*Pistachia chinensis* / Pistache, Chinese	3	7	21	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
104	*Pistachia chinensis* / Pistache, Chinese	3.3	7	24	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
105	*Pistachia chinensis* / Pistache, Chinese	2.7	7	21	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
106	*Pistachia chinensis* / Pistache, Chinese	2.5	6	23	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
107	*Pistachia chinensis* / Pistache, Chinese	2.9	7	23	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
108	*Pistachia chinensis* / Pistache, Chinese	3	8	22	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
109	*Pistachia chinensis* / Pistache, Chinese	3.3	7	22	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
110	*Pistachia chinensis* / Pistache, Chinese	2.5	6	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
111	*Pistachia chinensis* / Pistache, Chinese	2.7	6	20	60%	45%	52% Fair	High	Semi-mature	Neighbor's parking lot curb 5'; still staked but stake no longer needed, rubbing-wounding trunk.
111					Good =		19			
					Fair =		73			
					Poor =		17			
				Very Poor =			2			
					Dead =		0			
							111			

Legend: Ray Morneau, Arborist - Tree Inventory Headers

Observations were made and data gathered during my on-site inspections (August 17 & 19, 2016). Further conclusions and protection measures were refined from office research, seminar information, and past experience based on those observations and data.

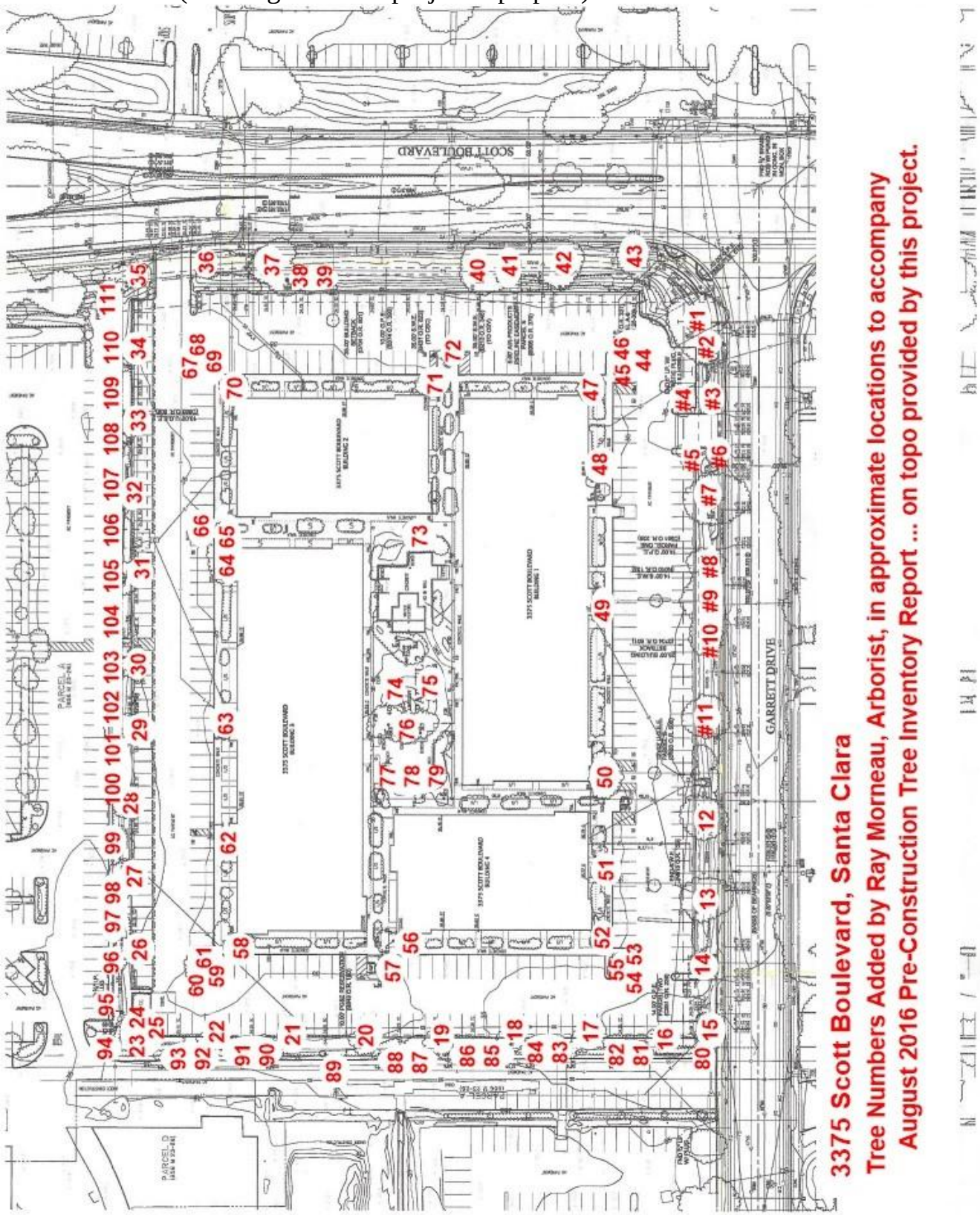
Unless otherwise defined as a limited inventory, all site trees larger than a minimum diameter (usually ≥4-inch) were numbered and inspected.

The gathered data was entered into a Microsoft® Works database. The data is encapsulated into the accompanying "Tree Inventory Data" section. The categories are typically self-descriptive with only the following notes.

Prefix:	I add a distinguishing prefix to identify each of these trees as linked with this inventory, thus differentiating it from any other numbering system. Most frequently, I use the current year's digits (here, "16").
Tree Number:	I sequentially assigned tree numbers from 1 to 111. A 1" diameter aluminum tag is nailed to each tree at about eye level. I add a year-prefix "16" to identify each as linked with this inventory, thus differentiating it from any other numbering system.
Names:	We employ the initial common names from McMinn, if listed, otherwise from Sunset. Scientific/botanical names are included to minimize confusion. As applicable, we used McMinn's key and/or Sunset's descriptions.
Diam.. (inches)	Diameeter of trunk measured at 4.5-feet above ground level [also a standard industry measurement, often obtained with a forestry diameter tape: "dbh": diameter at breast height].
Crown / Foliage Radius:	The averaged radii's measurement is shown in feet.
Ht (Height):	Estimated distance foliage crown extends above grade, recorded in feet.
Vigor:	Rating for tree's growth and vitality as a blend of elements like leaf or bud size and color, twig growth (elongation), accumulation of deadwood, cavities, woundwood development, trunk expansion (growth "cracks"), etc.
Form:	Structure rating for tree's architecture as a composite of factors like branch attachment, lean and balance, effects of prior breakage, crossing-tangled-twisted limbs, codominant trunks and/or branches, decay and cavities, anchorage (roots), etc.

Overall Condition:	Percentage rating assessing the tree's overall vigor, recent growth, insects/diseases, and structural defects - converted to a relative text rating as: Excellent, Good, Fair, Poor, Very Poor.
	This corresponds to the "Condition Percentage" factor in tree valuations per the Council of Tree and Landscape Appraisers (CTLA) system used by the International Society of Arboriculture. (CTLA, 1992.)
	It combines foliage, branches, limbs, trunk, and root ratings into a composite condition score. This rating is used in the calculation of these trees' appraised value required by some jurisdictions.
Species Aptitude:	Rating the degree of tolerance similar trees have to typical construction disturbances, like root loss (severed, buried), soil compaction, water changes, etc. Ratings range across Good, Moderate, and Poor (per Matheny & Clark).
Age / Longevity:	Rating comparing estimated present age with likely longevity (Short - Moderate - Long).
Suitability for Preservation:	Considers tree's condition (vigor and structure), longevity/age, adaptability, and aesthetics. This rating takes into account any announced intentions of changes in area/lot use. Degrees: High, Moderate, Low, Very Low.
	High: Tree in great condition and any existing defects or stresses are minor or can be easily mitigated.
	Moderate: Notable vigor and/or stability problems but which can be moderated with
	Low: Significant problems, including shorter life expectancy. Difficult to retain but
	Very Low: Substantial existing problems, defects, stresses. Unlikely to survive impact of any project.
Comment:	Notes; most obvious defects, insects, diseases or unique characteristics.

4.2 Site Plan (Existing Trees on project topo plan)



4.3 Basic Tree Preservation Measures (TPM)

INTRODUCTION TO TPMs

The basic tree protection fencing is just the first step in tree preservation. Many additional tools and procedures come into play. Usually restrictions of space and time curtail the use of the more esoteric ones, but those below are important ones. And, ideally, the owner/designer makes decisions well ahead of the project's start so that only trees which can realistically be preserved are retained.

TREE PROTECTION FENCE (TPF)

- When? Install before any other phase of the project commences.
- How Long? Keep in place throughout project, until final landscaping.
- Material? Fence = continuous, rolled 6-foot high chain link fence, except shall have ~2-foot opening for inspection access. Posts = 8-foot tall, 2-inch-diameter galvanized posts driven 2-feet into the soil. Signs = minimum 8.5"X11", warning of penalty for working inside of fence or removal without written permission of Project or City Arborist [specific sign wording can be provided in memo form].
- Where? As noted above, generally, fence as much of the root zones as possible, ideally 5-feet beyond the driplines (branch tips) or including the entire TPZ.
  For this project's design constraints, the fence locations are pulled back to hardscape perimeters [with supplemental root zone protection described below].
- Why? The purpose is to exclude all construction impacts from this root zone area, which, for the most part, must be preserved to maintain reasonable chances of tree preservation.
- Work Inside of Fences? Any construction activity inside of these fences impacts an extremely sensitive area, both below ground and often above.
  So, ideally, a project is designed to only impact areas outside of the TPF. When the project decision is to come inside of a TPZ, then the tree(s) are put at greater risk of failed preservation – but that is a common decision in our urban environments where space is so limited.
  The Project Arborist must be called to be on-site to monitor any work inside of any tree protection fence.

SUPPLEMENTAL PROTECTION – MULCH – ROOT ZONE BUFFER

- Wood chip mulch shall be applied over open root zones (beneath trees' driplines) to a depth of 4- to 6-inches, tapering to soil level within the 9-inches nearest the tree trunk.
- Wood chips from tree pruning operations are ideal – they make a mulch that provides exceptional benefits to all trees – modifying the soil environment to conserve moisture, promote beneficial soil microbes, buffer against weather (desiccating sun, drying winds, pounding raindrops, temperature extremes), cushion the soil structure from foot (or vehicle) traffic.
- Provide this for all trees – even inside of TPFs.

- Where this buffer is used when TPFs cannot be placed at a dripline, additional supplemental material(s) may be required. When pre-existing driveway asphalt, or similar durable surface can be maintained intact, that may suffice. Otherwise for these cases, arborist sign-off is required, but generally depends on the traffic load:
  - – Foot traffic and wheelbarrows: sheets of 5/8-inch plywood tacked together.
  - – Small bobcat-type vehicles and "Fergie"-size tractors: increase chip depth to 9-inches with 1-inch plywood sheets.
  - – Occasional full-size vehicles (cars, pickups, service vans): 9-inches of chips.
  - – Cement trucks, haulers, loaded dump trucks, heavy-duty delivery trucks ["construction site temporary access road"]: a layer of biaxial geogrid (e.g. Tensar BX1200, or equal) on top of existing grade, topped with 12-inches of chips with 1-inch trench plate, tack welded together to avoid slipping apart.
- Removal of any existing driveway or parking lot asphalt from over root zone areas must be performed with care. The excavator/tractor/trucks must keep all tires/tracks on the existing asphalt, picking it up as it goes. Re-laying the paving surfacing is done in reverse path, again keeping all tires/tracks on the hard surface above any root zone.

ROOT-SENSITIVE DESIGN – Here, this design team has already taken into account the space needed to preserve Heritage Trees (mostly neighbor's). Further, the limited quantity of preservable trees mostly excuses the design and work plan from taking root zones into account. But when available on sites, techniques to consider can include:

- Pier and grade beam (on top of existing grade) to suspend construction above the roots.
- Trenchless technology to place utilities beneath roots without severing by trenching.
- Porous concrete, porous asphalt, open pavers can be used for some surfaces to let both air and water into root zones.
- Re-route the layout in a different location to avoid tree roots.
- Ramp over tree roots to avoid compacting their soil or severing them.

SUPPLEMENTAL WATERING and FERTILIZING

- Objective: To provide moisture to promote vigorous, healthy root growth.
- Procedures:
  - Water application hints can be found in the ISA *BMPs (Fertilization)*.
  - Generally, a basic rule is to provide a deep soaking once a month during the hottest months of the year. Start before construction commences. Continue for a year after project completion. Modify by on-site arborist observations, especially during the "dry season" or in "drought conditions".
  - One application of water can be made to be included with a fertilizer application.
  - Surface applied, or soil injected to a depth of 6- to 8-inches.
  - Rules of thumb:
    - 10- to 20- gallons of water per trunk diameter inch per month, applied evenly over the root zone.
    - Applying one inch of water will wet a moderate clay soil to about a depth of one foot.
  - Soil samples should be lab tested to determine nutrients lacking- lab fertilizer

recommendations should be followed.

PRUNING

- General: The care of trees is the obvious domain of tree care contractors. Any clearance pruning, removals, aesthetic trimming, removal of limbs, root pruning, stump grinding, and/or remedial repair must be performed by a tree care contractor with a current California Contractor's License – the appropriate classification is C61/D49, with workers being WC-ISA Certified Tree Workers supervised by an ISA Certified Arborist. This includes removal of trees and/or stumps with intertwining/overlapping branches or roots.

- Routine: Typically trees would benefit from pruning near the end of a project, sometimes to improve the health and structure of some, but also to remove any deadwood, establishing a benchmark against which one can measure changes in the trees' status (e.g., accumulation of new deadwood, hence decline).

- Project-Critical: Of particular importance here may be project clearance issues. Depending on the owner's decision about which trees to retain, crown cleaning, thinning and raising may be needed, especially structural pruning for the near at hand perimeter trees.

- Standards: All tree work must comply with applicable tree-specific *ANSI Standards* and be performed within the guidelines of the ISA *Best Management Practices* – qualified tree care contractors will be thoroughly familiar with those published industry standards.

  Typical pruning types to be used are described in the cited standards. Most of the trees would benefit from "cleaning" to remove deadwood and diseased or superfluous branches; plus, they can be improved structurally by "thinning" to reduce foliage branch endweights; many will require "raising" for project clearance.

- Over-Pruning: Care must be taken to avoid over-pruning trees that one seriously wants to preserve. Not only does that ruin trees' structure, but it also removes so many food-producing leaves that it stresses the trees (puts them on a diet), sometimes irrecoverably.

  Generally, one can prune 25% from a young, vigorously growing oak or redwood without resulting in a stress reaction. Mature trees usually show stress when 15% is pruned out. Over-mature specimens can readily show decline when even 5% of the live foliage is removed from an area of the foliage canopy.

- Pruning Specifications: Objectives and procedures must be project-specific. As project details take shape, the Project Arborist can draft tree-specific pruning specs in line with those general guidelines, depending on the extent to which the project is designed to accommodate tree preservation.

- Root Pruning: Any roots that must be severed must be cut cleanly (no shatter, rip, tear). A tree care contractor must root prune along any line, cut, or trench that will disrupt roots larger than 1-inch diameter. This root pruning is best scheduled prior to the installation contractor's work – this actually both speeds up the work for the contractor and causes less damage to the trees.

CUT / FILLS

- Cuts into root zones must be minimized, per roots and root zones discussions above.
- Preview by Project or City Arborist required before commencing.

ROOT CROWN CHANGES / DISTURBANCES

- Root crown: the base of a tree – where the trunk ends and scaffold roots flare off into the surrounding soil. No change or disturbance may occur in any root crown area and all materials inadvertently or intentionally accumulating there must be removed.

ATTACHMENTS

- No construction apparatus shall be attached to any tree (braces, signs, slings, etc.).

TRENCHES

- Proactively avoid routing any trench under any tree's dripline (including: utility, sewer, phone, cable, electric, drainage, irrigation, decorative lighting, pool supply, etc.).
- In the unlikely event that a trench must cross a root system, the plan must be reviewed by the Project Arborist before that work can be done.
- Consider alternatives – Tunnel with trenchless technology equipment? Hand dig? Trench straight toward a tree's trunk from both sides and then follow tunneling procedures for the short distance between (tree-specific distance recommendations can be made, based on an individual subject tree's size)?
- When trenching across a root zone is necessary on-site monitoring by Project Arborist is required.

EQUIPMENT CLEANING

- Establish a "Clean Out" site for such equipment as concrete trucks, cement forms, plastering apparatus, paint tools, etc. This must be located well away from any tree's root zone – or even any future planting area.
- All (sub)contractors must be on-notice that equipment must never be cleaned out over any tree's root zone – and where the designated "Clean Out" site is located.

STORAGE

- No storage of gasoline, oil, or other chemicals over any tree's root zone.
- No storage of any construction materials inside of any tree protection fence.

CHEMICAL SPILLS

- Promptly confine and clean up any chemical spill over any root zone.

PARKING

- No parking under tree canopies unless the root zones are protected. This will be precluded if they can be fenced at the driplines. Even more important is the root zone wood chip mulch.
- Traffic causes irreparable harm to the soil structure and to the tree's roots due to the compaction.

  Root zone compaction under a traffic load can be reduced by thickening the root zone buffer – say, beefing up to 6- or 8-inches of wood chips. Alternative buffer surfaces might include (alone or in combination): crushed rock, plywood sheets, steel plate, etc.

  And, one still must be careful of clearances to avoid bark bruising, trunk scrapes and limb breakage.

PUBLICATION & NOTICE

- A copy of these tree protection measures must be on site, available to all workers, so they will be on notice regarding the trees' requirements.
- One effective method is to paste up these pages on a sheet (usually titled "Tree Preservation Plan, Sheet T-1", or equivalent) and be certain that it is included in every set of construction drawings issued.

LANDSCAPE PLAN

- A well-thought-out landscaping plan can be essential. It must take into account the status and longevity of this site's existing trees. Plan for the irrigation lines to be laid on top of existing grade, placed beneath the wood-chip-mulch layer. Expect no irrigation or water-loving plants within 10-feet of any mature tree's trunk.

MONITORING

- Project Arborist inspections begin with a sign-off to confirm that initial tree protection measures are in place before commencement of any other part of the project.
- The most cities require periodic monitoring inspections by the Project Arborist verifying that the tree preservation measures continue to be effective, with monthly reports faxed to the owner and City Arborist.

PENALTIES

- All (sub)contractors and their personnel must understand that they are responsible for their actions around these trees.
- Circumventing tree protection measures will almost certainly cause the tree(s) additional stress.
- This can be calculated as a change in the tree's status and there are formulae for assessing damage dollar amounts (see CTLA, Council of Tree and Landscape Appraisers).
- Besides penalties derived from action on the City Ordinance, courts have required contractors to pay penalties directly to the property owner suffering the damage/loss (diminution in tree value), sometimes assessed as double or treble if intentional action.

5.0 Certification

I certify that all the statements of fact in this report are true, complete, and correct to the best of my knowledge, ability, and belief, and are made in good faith.

Thank you for the opportunity to apply my knowledge and expertise working with your trees. Good luck with the next phases of your project. If I can answer any further questions, please inform me of any tree-related queries anyone associated with the project may have.

Respectfully submitted,

Raymond J. Morneau
ISA Certified Arborist #WE-0132A
ISA Qualified Tree Risk Assessor